(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 457 452 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 91303817.0

(51) Int. Cl.5: B65D 83/00

(22) Date of filing: 26.04.91

(30) Priority: 15.05.90 DE 4015549

(43) Date of publication of application:
21.11.91 Bulletin 91/47

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

(71) Applicant: THE PROCTER & GAMBLE COMPANY
One Procter & Gamble Plaza
Cincinnati Ohio 45202(US)

(72) Inventor: von Schuckmann, Alfred
Kervendonk 63
W-4178 Kevelaer 2(DE)

(74) Representative: De Minvielle-Devaux, Ian Benedict Peter et al
CARPMAELS & RANSFORD 43, Bloomsbury Square
London WC1A 2RA(GB)

(54) Dispenser for delivering pasty compounds.

(57) A dispenser (Sp) for delivering a pasty compound, e.g. toothpaste, (1) comprises a cartridge (K) in the form of a shell, which cartridge is arranged in a housing (2) and contains the compound (1), to which cartridge shell (4) there is assigned at the end (b) opposite its mouthpiece opening (3) a cutting blade (17) that dissects the cartridge wall in accordance with the evacuation of the compound, and is characterized by a dissecting overrunning of the abutment (16) of the housing (2), which abutment supports a cartridge plunger (11). The cartridge shell (4) can be displaced axially against the cutting blades (17) by actuating from the end of the mouthpiece opening, and the cutting blades (17) may cross a through-channel (18) for the cartridge shell (4) located between the abutment (16) and housing wall (2').

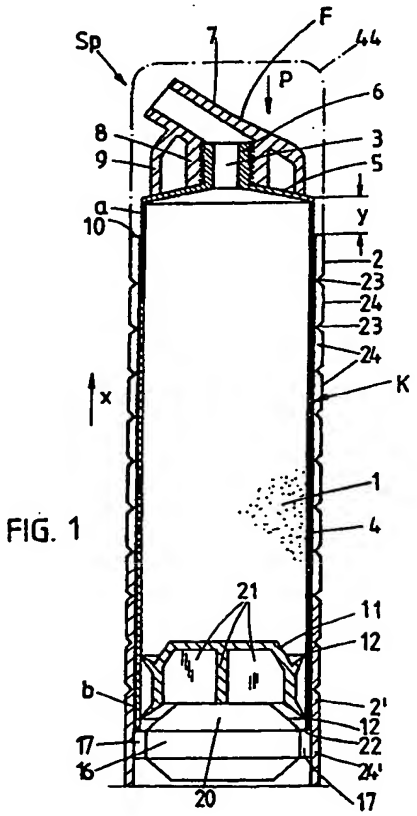


FIG. 1

EP 0 457 452 A2

Field of the Invention

The invention relates to a dispenser for delivering pasty compounds, especially a dispenser of the type having a cartridge, in particular a cartridge in the form of a shell, which is disposed in a housing and which contains the pasty compound, and a cutting blade associated therewith that is arranged at the end of the cartridge opposite the discharge opening for dissecting the cartridge wall as the pasty compound is discharged or ejected.

Background to the Invention

A dispenser of the stated type is known from US Patent 1,762,943. There, the ejection is effected via a rotary cap forming a pressure base. Said cap forces out the compound, which is located in the cartridge shell, in strands via the mouthpiece opening. The rotary cap receives the appropriate advance by means of a thread. The latter depresses the rotary cap into the wall of the cartridge shell itself. For this purpose, the pressure base has the appropriate impressing negative on its inner pot-shaped circumferential surface, while a boss in the wall of the rotary cap embracing the end forms the associated positive. Pressing in the thread is exceptionally intensive frictionally. The axial passage of the pressure base required for the desired delivery without remainder takes place by means of rear reduction of the cartridge shell, to be precise by means of helical dissection of the tube body starting from the lower, open rim. The resultant cutting chip, which is shaped like a bore curling, emerges through a window on the base side of the rotary cap. This is not only a potential source of the danger of injury, above all if use is made of the classic tube made of sheet metal or zinc or aluminium, but it is also necessary for the resultant chip to be removed each time. Furthermore, it is disadvantageous that the tube body is shortened with increasing use, as is the case with the known squeeze tubes, which are rolled up starting from the end averted from the mouthpiece opening, the only thing being that the explained dissection version is structurally more complex and can scarcely be realized, which is probably why, as far as is known here, it has never been offered on the market.

Summary of the Invention

It is an object of the invention to use the idea of dissection to design a dispenser in accordance with the generic concept from the point of view of production engineering, and in a manner advantageous for use and easy to operate, and to do so such that the dispenser can preserve its handy form and original length, at least with reference to the cartridge, over the entire period of relevance here, even despite evacuation.

The present invention provides a dispenser for delivering pasty compounds, having a cartridge in the form of a shell, which cartridge is arranged in a housing and contains the compound, to which cartridge shell there is assigned at the end opposite its mouthpiece opening a cutting blade that dissects the cartrdige wall in accordance with the evacuation of the compound, characterized by a dissecting overrunning of the abutment of the housing, which abutment supports a cartridge plunger or piston.

The expression "pasty compound" herein includes pasty substances in general, e.g. pasty compositions or masses such as toothpaste or the like.

Description of preferred embodiments

The result of such an embodiment is to achieve a dispenser according to the generic concept that has a high utility value. In this arrangement, the dispenser is virtually maintained at its basic length until complete evacuation, but at least at the length of the cartridge shell, which is approximately of a corresponding length. The displacement path cuts itself free. In practical terms, this is achieved by a dissecting overrunning of the abutment of the housing, which abutment supports a cartridge plunger. This longitudinal slitting takes place starting from the end of the cartridge shell averted from the mouthpiece opening. Said cartridge shell consists of a stiff material. Thus, even the customary zinc or aluminium tube can be used, as also can a tube made of cuttable plastic. In this arrangement, it is not even necessary for there to be a special stiffness of the cartridge wall, since the continuous curvature of the wall is enough in itself to provide a high inner stiffness, and the cutting direction is essentially axial. Averted from the mouthpiece opening, the section cut open, that is to say longitudinally slit, projects as a manipulation zone progressively backwards over the cutting point. It proves to be advantageous, moreover, that the cartridge shell can be displaced axially against the cutting blades by actuating from the end of the mouthpiece, and the cutting blades cross a through-gap for the cartridge shell located between the abutment and housing wall. Such a through-gap has a guiding effect. The part to be slit cannot escape. On the other hand, the end of the cartridge shell located near the end of the mouthpiece opening inherently has sufficient stiffness to be able to serve as an actuating surface. Furthermore, it is favourable that the cutting blades are supports of the abutment. They therefore produce the connec-

tion to the surrounding housing. A good distribution of the cutting load is produced if the cutting blades are diametrically opposite one another. In general, two cutting blades suffice, so that two shell-shaped half-tubes emerge. Said half-tubes encounter one another with the edges of their cut surfaces in a supporting fashion at the holding grip. On the other hand, the cutting resistance would also not be essentially increased if, for example, a three-point constellation of cutting blades were to be realized in conjunction with a corresponding equi-angular distribution of the cutting blades. The invention further proposes that the abutment has a frustum-shaped configuration on at least one side and is arranged in an overlapping engagement with respect to the cartridge plunger. Given the assignment of the cartridge shell effected here, whether this be in the case of the initial fitting by the manufacturer or, instead, of subsequent fitting by the user, the taper occurring in the direction of the mouthpiece opening results in an advantageous centring, and thus in an alignment for the cutting operation that is always functionally correct. Furthermore, it is favourable that the lower plane of the cartridge plunger is located at a distance from the lower end rim of the cartridge shell, which distance corresponds to the cutting path. Like the previously mentioned embodiment, this has a progressive supportive effect for the cartridge plunger, so that in no case does the cartridge plunger reach the region of the cutting blades. Furthermore, it proves to be favourable that the tube wall of the housing is reducible in a stepped fashion starting from the end on the side of the mouthpiece opening. Consequently, it is possible in each case to achieve a new projection as the stroke travel for the cartridge shell to be pressed in at the housing. The corresponding projection over the respective housing rim can correspond to a multiple of a portion, for example the quantity required by a family per day. Corresponding bared housings are known, for example with bar soap, which is rolled into a protective sheath, which protective sheath can, by virtue of an annular perforation undertaken in stages, be exposed appropriately step by step on the used side. In the case of a housing for the present use, a more stable embodiment, i.e. with a thicker wall, for example made of plastics, is naturally to be recommended. In the case of an inner stability already provided by the tubular form, a possible advantageous development, corresponding to added rings, also resides in that the supports of the abutment are formed in one piece with one of the removable rings. An optimum embodiment, in the case of which the housing of the dispenser can also preserve its original length and not only the length of the dispenser is determined by the cartridge shell employed therein, is produced, furthermore, when the abutment including the cutting blades is configured as a slide of the housing which can be displaced in the direction of the mouthpiece and pushes the cartridge plunger in front of itself. Thus, the over-running relative movement is achieved here via the displaceable slide. An advantageous assignment is produced in this connection by longitudinal slots in the housing for guided bearing of the slide. The respective new plane of the slide's advanced position can be secured by arresting of the slide positions with the aid of a locking slat. In a structurally advantageous fashion, the catches are obtained by means of external actuating pawls of the slide, which snap into indentations of the locking slat. In this arrangement, the actuating pawls are located opposite a guide ring of the slide situated on the inside of the housing wall. The guide ring produces an optimization of the desired tilt-free displacement of the entire slide, and the desired positional accuracy of the cutting blades, which thus here, too, are connected, on the one hand, to the body forming the abutment and, on the other hand, to the said ring, which guides here on the inside, however. The guiding of the slide is optimized in this arrangement when the pawls are combined to form a manipulation ring, this being done by utilizing a guide which is now on both sides of the tube wall of the housing. Furthermore, it is proposed that a guide cam projecting into the longitudinal slot originates from the actuating pawls. In order to achieve the return of the slide into its initial position for the purpose of inserting a fresh cartridge, it is proposed that the actuating pawls can be withdrawn by means of displacement in the circumferential direction from the region of the locking slats, i.e. from their locking position, by withdrawing the guide cams. Thus, by gripping the manipulation ring it is possible for the slide to be pushed back in a smooth region not provided with catch teeth. Furthermore, it is advantageous that connecting pins between the guide ring and manipulation ring penetrate the longitudinal slots of the housing wall, which longitudinal slots are bounded at the bottom, and the lower rim of the housing is gripped by a stabilizing ring. The connecting pins, which are configured like stub axles and project a little beyond the circumferential surface of the housing, plug into corresponding receptors or catch recesses of the manipulation ring. Release for the purpose of returning the slide takes place only by imparting an intentional rotary movement to the manipulation ring. Having reached the final position in this regard, the manipulation ring need only be rotated once again into the functionally correct position, in which the guide cam once again engages in the longitudinal slot. Furthermore, it is proposed that at the end located nearer the mouthpiece opening the housing possesses a reduced

collar for centring the cartridge shell in a position at a distance from the inner wall of the housing. The collar that can be achieved owing to the wall offset creates sufficient clearance for accommodating the cutting blades in the dispenser interior. Furthermore, the collar holds the cartridge shell in place in the end region there by slight friction. To prevent creeping of the cartridge plunger, for example owing to the full load, the cartridge shell has a cartridge plunger return stop. The latter also keeps clear the initial accommodation space for the abutment. Cartridges without such a clear prechamber open on the abutment side cannot be assigned in a functionally correct fashion. To be precise, the cartridge plunger return stop is formed by lugs cut free and pawled at the rear of the cartridge plunger, the U-shaped surfaces cut free being located in the direction of the cartridge plunger. As a result there is also reliable severing when these lugs are located in the cutting path (in the opposite direction they would fold over one another and form a double wall in practice and thus an impediment to cutting).

The subject of the invention is explained in more detail below with reference to two illustrative embodiments depicted in the drawings, wherein:

Fig. 1 shows the dispenser according to the invention in accordance with the first illustrative embodiment, to be precise in a vertical section, with inserted cartridge;

Fig. 2 shows the cartridge in an individual representation, likewise in vertical section;

Fig. 3 shows the dispenser in an advanced state of evacuation, depicting the through-passage of the cartridge on the base side;

Fig. 4 shows the cartridge plunger in an individual representation, to be precise in a bottom view;

Fig. 5 shows the side view thereof;

Fig. 6 shows the section in accordance with line VI-VI in Fig. 3, but with the cartridge shell omitted;

Fig. 7 shows the abutment in a perspective partial view with the cutting blade indicated;

Fig. 8 shows the dispenser in accordance with the second illustrative embodiment, likewise in vertical section and with inserted cartridge;

Fig. 9 shows this dispenser in a side view, seen in the direction A of Fig. 8;

Fig. 10 shows the cartridge in a vertical section, reproducing a return stop for the cartridge plunger; and

Fig. 11 shows the section in accordance with the line XI-XI in Fig. 8.

The dispenser Sp of both illustrative embodiments, which is intended for delivering filled contents that are pasty or even have a certain degree of flowability, such as toothpaste, for example, (denoted throughout as pasty compound 1), possesses a tubular housing 2. This is a tube of round cross-section.

The pasty compound 1 is located in a cartridge K of matched cross-section. The cartridge K can be inserted from above into the housing 2, for example in order also to exchange a fresh cartridge K after evacuation of the first cartridge.

The removal of the cartridge K takes place in the delivery direction x of the compound 1.

The reference to pasty compounds appearing in the generic concept also includes the ejection of a supplementary compound, such as a gargling component, which is fed in a known way in the region of a mouthpiece opening 3 at the top of the cartridge. The appropriate apportioning tube with the channels forming one or more supporting stiffeners is not represented.

Each cartridge K consists of a relatively stiff cartridge shell 4, which is terminated in the region of the mouthpiece opening 3, which can be sealed by a plug, by a rigid top 5 from the top side of which, in accordance with Fig. 1, a mouthpiece socket 6, which forms or helps to form the mouthpiece opening 3, originates. In the first illustrative embodiment, this mouthpiece socket 6 is centrally located. Its circumferential surface has an external thread, which external thread is connected to a mouthpiece nozzle 7 that can be screwed on. A central socket 8, which cooperates by using threaded technology with the mouthpiece socket 6, bears with its lower end, limiting the screw, on the top side of the top 5. Concentric with this central socket 8, the mouthpiece nozzle 7 has a peripheral ring socket 9, which is likewise supported on the top 5 and thus additionally stiffens the entire head region of the cartridge K.

In the case of the cartridge K in accordance with the second illustrative embodiment, the cartridge shell 4, which is likewise cylindrical here, merges into a non-central mouthpiece opening 3, the mouthpiece nozzle 7 being here, however, an integral component of the cartridge shell; it is thus equally part and parcel of the material. In both cases, the top 5 takes a course directed obliquely upwards, be it of a rotationally symmetric type as in the first illustrative embodiment, or in the form of an asymmetric sloping roof as in the second illustrative embodiment. Such a measure likewise contributes to the stiffening of the cartridge head, so that the latter forms with its top side a pressure actuating surface F.

In this connection, for the purpose of acces-

sibility and the exertion of an evacuating pressure (cf. arrow direction P) to eject the pasty compound 1, in the ready-to-use position the upper end a of the cartridge projects freely beyond the upper end rim 10 of the housing 2. This axial projection of the cartridge is denoted by y, and can be coordinated with the stroke travel of a delivery portion; it is expedient, however, to proceed so that the projection y corresponds to a multiple of the volume of a delivery portion. A delivery portion comprises approximately 2 ml. The volumetric proportion of the projecting section of the cartridge K takes account of approximately five delivery portions.

The lower end of the cartridge K or the cartridge shell 4, respectively, is sealed by a cartridge plunger 11. This is a pot-shaped injection moulding, which has on its circumferential surface two axially spaced sealing lips 12. The cartridge plunger 11, which thus creates the sealing termination in the region of the lower end b of the cartridge K, is secured against creeping out, for example because of the weight of the pasty compound overlying it. This so-called cartridge plunger return stop is represented in Fig. 10, and is applied analogously in the cartridge K reproduced in the preceding figures, although no representation is given in the drawings there. To be precise, this return stop is achieved by means of stop elements seated at the rear of the assigned cartridge plunger 11. Said elements are formed by free-cut, pawled lugs 13 of the cartridge wall. A virtually U-shaped free cut is realized. The two parallel U-limbs extend axially, and the U-web located between these two limbs extends convexly curved on the cartridge plunger side. The pawl angle is approximately 30°, so that in the event of a possible sagging of the cartridge plunger 11 the lower sealing lip 12 runs into the wedge zone 14, which is open upwards, and is supported there. On the other hand, the lugs 13 are not in the way in the case of subsequent assignment of the plunger; they are briefly deflected into the windows 15 cut free, and spring back once again into the active stop position.

The cartridge K is supported, in particular, via the cartridge plunger 11 and the filled content of the column of pasty compound 1 in the region of the lower end of the housing 2. A fixed abutment 16 serves this purpose. The cartridge plunger 11 is seated on the top side of said abutment, so that in this way the whole cartridge K receives its basic position, which defines the projection y.

The ejection of the pasty compound 1 takes place in conjunction with the dissecting overrunning of this abutment 16, supporting the cartridge plunger 11, of the housing 2, that is to say in conjunction with severing of the cartridge shell 4.

The cutting blade, which in this process slits or dissects the cartridge shell 4 axially starting from the lower end b, is denoted by 17. At least a pair of blades is provided, which cross the axial displacement path of the cartridge wall. The cutting blades 17 are diametrically opposite one another and arranged at the same level. They are thus located between the abutment 16, which occupies the largest cross-sectional region of the inside diameter of the housing 2, and the housing wall 2'. The through-gap for the cartridge shell, which remains between the periphery of the abutment 16 and the inside of the housing wall 2' and is bridged only by the radially extending cutting blades, bears the reference symbol 18. Reference is made to the sectional representation in Fig. 6.

Although the cutting blades 17 could, for example, be steel inserts resembling razor blades, it is, of course, also possible to construct such cutting blades in an integral fashion making use of appropriately highly crystalline plastics. In both cases, the cutting blades 17 are supports of the abutment 16.

The upper cutting edge of the cutting blades 17 can also extend obliquely instead of horizontally.

The top side of the abutment 16 forms a conical projection 20 tapering upwards. In the illustrative embodiment represented in Fig. 1, such frustum-shaped projections 20 are formed on both sides. The upper projection 20 brings the abutment 16 into overlapping or partly overlapping assignment with respect to the cartridge plunger 11 located thereabove, as a result of appropriate clearance of the cartridge plunger 11 on the underside. The lower support surface bearing on the planar top side of the projection 20 is defined by a cross-ribbing, as emerges clearly from Fig. 4. The individual ribs are denoted by 21. They reach up to the top of the plunger body, of pot-shaped configuration, and thus at the same time stiffen said plunger body. In the basic position, as may be seen from Fig. 1, the abovementioned upper projection 20 of the abutment projects into the cartridge K, which is open on the underside and leaves an empty prechamber V. The lower sealing lip 12 of the cartridge plunger 11 is likewise positioned at a distance from the cartridge end rim 22 there. It follows from this overall constellation that the lower plane of the cartridge plunger 11 is located at a distance corresponding to the cutting path from the lower end rim 22 of the cartridge shell 4.

The illustrative embodiment in accordance with Fig. 1 provides a step-shaped reduction of the tubular wall of the housing 2, to be precise starting from the end on the mouthpiece side. This reduction is provided in order to create in each case a new accessibility or a new projection y for the delivery actuation. For the delivery actuation the cartridge K is pushed deeper inwards in each case

via the cutting blades 17, until the top 5 is approximately flush with the upper end rim 10 of the housing 2. Nevertheless, the dispenser Sp is not shortened in the process, since the cut-open lower end b of the cartridge K itself emerges unshortened from the lower end of the housing 2 (cf. Fig. 3). Consequently, the end b, more precisely the end rim 22 of the longitudinally slit section of the cartridge shell 4, which end passes through freely downwards, forms the standing foot and, as a whole, also the further grip. In the interest of a simplified stepped reduction, the wall of the housing 2 is provided on the circumferential surface with axially spaced notches 23, which run round at the same level and serve as desired break lines, and which leave only a material thickness of the tube wall which just ensures the stability of the housing 2. This produces individual rings 24, which step-by-step define the new projection y. In the interest of easier manipulation of the desired break rings thus achieved, it is possible to realize pull tabs (not represented in more detail), which start in the vicinity of a transverse notch axially connecting the notches 23. Seen in this way, the radially aligned cutting blades 17, which form the supports of the abutment 16, are also connected in one piece to one of the removable rings 24. In the illustrative embodiment, this lower, last ring 24' has approximately three times the axial length of a ring 24.

By constructing such rings 24 using threaded technology, it would, moreover, be possible for the removable rings 24 of the housing 2 to be built on once again at the lower housing end. In this way, the housing 2 itself would also preserve an unshortened length.

A particularly advantageous embodiment in this sense is provided by the second embodiment of the invention, reproduced in Figs. 8 and 9. Here, the direct assignment of the abutment/cutting blades 16/17 unit on the housing 2 is replaced by an indirect assignment. To be precise, in this connection an embodiment is preferred in which the abutment 16, including the cutting blades 17, is configured as a slide Sch of the housing 2, which can be displaced in the direction of the mouthpiece or the delivery direction y, and which slide, actuated from outside, pushes the cartridge plunger 11 in front of itself and in so doing effects the resetting of the projection y. The housing 2 has longitudinal slots 26 for this purpose, i.e. to actuate penetration. Said slots serve the purpose of axially directed displacement or guidance of the said slide Sch.

A locking-slat arrester is used in order to ensure the respective new plane level, which provides at least the measure of the projection y. Said arrester is provided by locking notches 27 on the side of the circumferential wall which cross the longitudinal slots 26, that is to say said locking notches are horizontal. Their lower horizontal flank 27' is the active locking flank, which prevents the slide Sch from slipping back in the direction of the base of the dispenser Sp.

The counterlocking means on the side of the slide are actuating pawls 28, the downwardly directed locking fingers 29 of which, provided in pairs, snap into the indentations of the locking slat thus created. As may be seen from Fig. 8, such actuating pawls carrying the locking fingers 29 are located in front of the diametrically mutually opposite longitudinal slots 26 in such a way that the split locking fingers 29 engage in a locking fashion on both sides of the longitudinal slot 26, to be precise one finger in each case.

These actuating pawls 28 are combined to form a manipulation ring 30, which is guided on the cylindrical circumferential wall of the housing 2, and forms the external part, i.e. the part accessible for actuation, of the slide Sch.

The manipulation ring 30 is connected to a guide ring 31 of the entire unit of the slide Sch, which guide ring extends in front of the inside of the housing wall 2' and is arranged at the same level. This ring is chamfered on its inner upper edge, so that a centring funnel 32 is produced for the cartridge K to be introduced. The guide ring 31 is comparable with the ring 24' carrying the abutment 16 (see Fig. 1), except that this ring 24' is now located as the guide ring 31 in the interior of the housing 2 surrounding it, so that, here too, the cartridge shell 4 can be displaced axially against the cutting blades 17 by actuating starting from the end of the mouthpiece opening, and the cutting blades 17 cross a through-gap 18 for the cartridge shell located between the abutment 16 and the guide ring 31. The further configuration features, relevant in this connection, of the first embodiment also apply here, such as the overlapping arrangement of the cartridge plunger 11 with respect to the abutment 16, the spacing at the end there, etc.

However, there is the structural change here that the abutment 16 is implemented with a pot-shaped configuration having a pot-opening directed upwards. The pot rim is supported on the cross-ribbed underside of the cartridge plunger 11.

In the absence of pressure loading in the direction of the arrow P, the cartridge K can be raised without cutting action to the next resetting plane. The abovementioned delivery of pasty compound 1 does not take place until intentional downward displacement of the cartridge shell 4.

In order to return the slide Sch once again to its initial position visible from Fig. 8, in order, for example, to introduce a new cartridge K, the actuating pawls require, or respectively the manipula-

tion ring 30 requires, only to be displaced in a predetermined circumferential direction z, so that the locking fingers 29 leave the active region of the locking slats. This takes place in conjunction with overriding of the locking force of a guide cam 33 guided in the longitudinal slots 36. Said guide cam leaves the guide slot 26 in the uppermost position, and thus comes onto an unnotched, smooth part of the circumferential wall of the housing 2. The rotation taking place to the right or left happens with the aid of a slotted link 34 on the inside of the manipulation ring 30.

A connecting pin 35 projects into the slotted link 34. Said pin originates from the circumferential wall of the guide ring 31. It penetrates, likewise in a pair arrangement, the respective longitudinal slot 26 with a peripheral projection beyond the annular join between the circumferential wall of the housing 2 and the inner surface of the manipulation ring 30. The slotted link 34 forms a locking receptor 36, which in conjunction with the guide cam 33 effects the rotary locking of the manipulation ring 30. The locking receptor 36 is not quit until there is intentional rotation of the manipulation ring in the circumferential direction. In this process, the radially projecting connecting pin 35 overrides a locking cam 37, for example on the base of the slotted link 34, in order to enter the section of the slotted link 34 forming an avoidance space 38. The slot ends create stop flanks 34' and 34" that cannot be overridden.

In order to fit the interior fittings, having as measured over the heads of the connecting pins 35 a greater extent with respect to the smaller internal diameter of the housing 2, the flexible housing 2 need only be pressed flat a little until the connecting pins 35 are located in the longitudinal slot 26. The peripheral manipulation ring 30 is then snapped on. Here, too, locking contact surfaces can be provided, the final effect of which is to create an irreversible connection. The lower, flexible tubular section of the housing 2 is subsequently stiffened by means of a slip-on foot ring 39. The latter has a rotationally symmetric U profile. The plug-in groove thus created is denoted by 40. It is directed upwards and accommodates the lower rim of the housing 2. The first locking notch 27 of the locking-slat arrester is already located at the level of the upper rim of the foot ring.

The two longitudinal slots 26 can also pass up to the lower rim of the housing 2, so that the connecting pins 35 can enter freely from there. This "threading opening" could then be sealed once again by means of the foot ring 39.

While in the first illustrative embodiment the tubular wall of the housing 2 passes through smoothly upwards, the embodiment in accordance with the second illustrative embodiment provides a wall offset inwards, so that a somewhat reduced collar 41 is present, and this serves to centre the cartridge shell 4 in a position at a radial distance while leaving an annular gap 42 with respect to the inner wall of the housing 2. The annular gap that is created extends over the entire remainder of the axial length of the housing 2, so that the necessary space for accommodating the guide ring 31 is achieved in this way.

Because of the reduction that creates the collar, a bearing shoulder 43 is produced at the same time for supporting a protective cap 44 depicted with dots and dashes in Fig. 9.

The collar 41, which is somewhat pointed towards the free end, holds the cartridge in place with a frictional grip, so that directing the dispenser head downwards does not lead to the inserted cartridge falling out.

In summary, the mode of functioning is as follows:

To eject the pasty compound 1 it is necessary to displace the cartridge K in the housing 2 against the direction of the arrow x. In this process, there is a relative displacement between the cartridge plunger 11 and cartridge shell 4. The compound is ejected via the mouthpiece opening 3. In this process, the cartridge shell is not reduced in length, but advances while being longitudinally slit by the cutting blades 17 on the underside of the abutment 16, while because of a stepwise reduction of the housing 2 the latter itself is reduced in its length.

In the dispenser in accordance with the second illustrative embodiment, the compound 1 is likewise delivered via the described pressure actuation on the head side of the cartridge K, it being the case that because of the relative movement between the cartridge plunger 11 and cartridge shell 4 a dissection of the latter also takes place here by means of overrunning of the abutment 16 supporting the cartridge plunger 11, the overall length of the cartridge being preserved, however, although it is the case here that because it is now possible to reset the supporting plane the gripping length of the housing 2 is also preserved, this being achieved simply by slit/slide guidance.

It will of course be understood that the present invention has been described above purely by way of example and that modifications of detail can be made within the scope of the invention.

The dependencies of the subsidiary claims hereinafter do not imply any limitation as to the possible combinations of the features mentioned in the claims: the optional and the preferred features of the invention revealed in the preceding description, the drawings and the claims can be of importance both individually and also in any combination for the implementation of the invention.

Claims

1. A dispenser for delivering pasty compounds, having a cartridge in the form of a shell, which cartridge is arranged in a housing and is for containing the compound, to which cartridge shell there is assigned at the end opposite its mouthpiece opening at least one cutting blade that dissects the cartridge wall in accordance with the evacuation of the compound, characterized by a dissecting overrunning of the abutment of the housing, which abutment supports a cartridge plunger.

2. A dispenser according to claim 1, characterized in that the cartridge shell can be displaced axially against the or each cutting blade by actuating from the end of the mouthpiece opening, and the or each cutting blade crosses a through-channel for the cartridge shell located between the abutment and housing wall.

3. A dispenser according to claim 1, characterized in that the or each cutting blade is a support of the abutment.

4. A dispenser according to claim 1, characterized in that cutting blades are provided that are diametrically opposite one another.

5. A dispenser according to claim 1, characterized in that the abutment has a frustum-shaped configuration or projection on at least one side and is arranged in an overlapping engagement with respect to the cartridge plunger.

6. A dispenser according to claim 1, characterized in that the lower plane of the cartridge plunger is located at a distance from the lower end rim of the cartridge shell, which distance corresponds to the cutting path.

7. A dispenser according to claim 1, characterized in that the tube wall of the housing is reducible in a stepped fashion starting from the end on the side of the mouthpiece opening.

8. A dispenser according to claim 1, characterized in that the supports of the abutment are formed in one piece with a removable ring.

9. A dispenser according to claim 1, characterized in that the abutment including the cutting blade or blades is configured as a slide of the housing which can be displaced in the direction of the mouthpiece and, pushing the cartridge plunger in front of itself, displaces the abutment into a new, higher plane.

10. A dispenser according to claim 9, characterized by longitudinal slots in the housing for bearing and guiding the slide.

11. A dispenser according to claim 10, characterized by arresting of the slide positions with the aid of a locking slat.

12. A dispenser according to claim 11, characterized in that the locking positions are obtained by means of external actuating pawls of the slide, which snap into indentations or locking notches of the locking slat.

13. A dispenser according to claim 12, characterized in that the actuating pawls are located opposite a guide ring of the slide situated on the inside of the housing wall.

14. A dispenser according to claim 12, characterized in that the actuating pawls are combined to form a manipulation ring.

15. A dispenser according to claim 12, characterized in that a guide cam projecting into the longitudinal slot originates from the actuating pawls.

16. A dispenser according to claim 15, characterized in that the actuating pawls can be withdrawn by means of displacement in the circumferential direction from the region of the locking slats, i.e. from their locking position, by withdrawing the guide cam.

17. A dispenser according to claim 14, characterized in that connecting pins between the guide ring and manipulation ring penetrate the longitudinal slots of the housing wall, which longitudinal slots are bounded at the bottom, and the lower rim of the housing is gripped by a stabilizing foot ring.

18. A dispenser according to claim 1, characterized in that at the end located nearer the mouthpiece opening the housing possesses a reduced collar for centring the cartridge shell in a position at a distance from the inner wall of the housing.

19. A dispenser according to claim 1, characterized by a cartridge plunger return stop.

20. A dispenser according to claim 19, characterized in that the cartridge plunger return stop is formed by lugs of the cartridge shell which are cut free and pawled at the rear of the cartridge plunger, the U-shaped surfaces cut free being

located in the direction of the cartridge plunger.

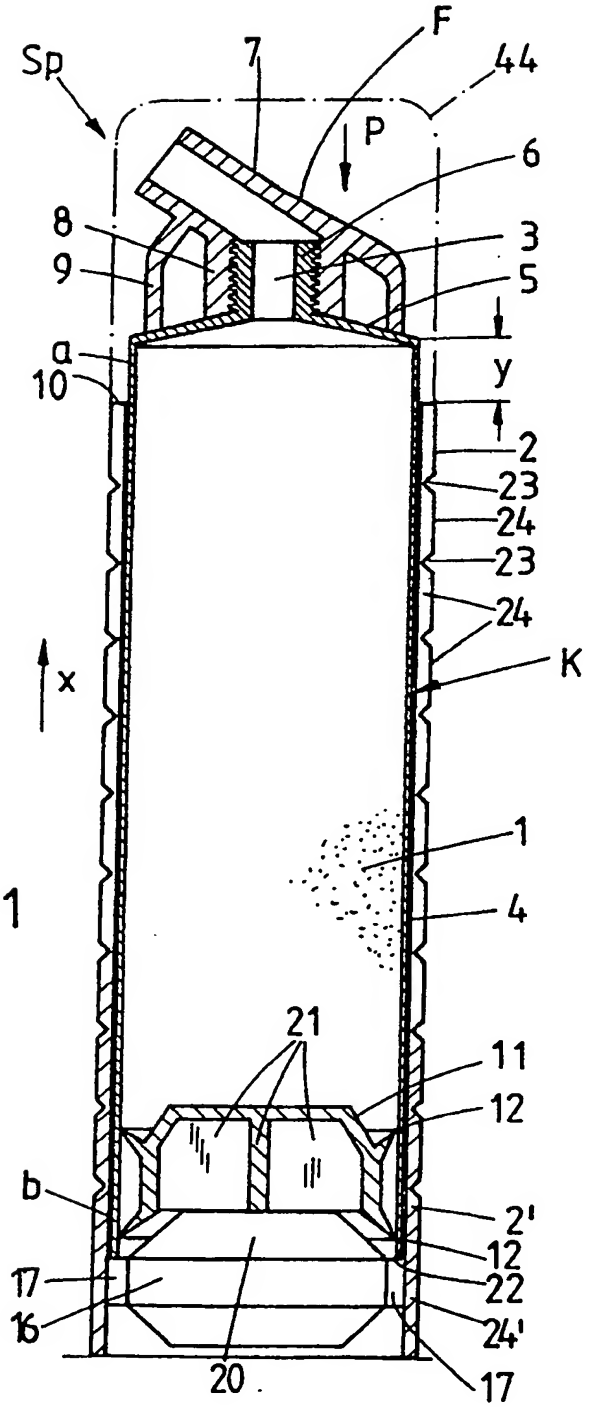

Sp
7
F
44
P
6
8
9
3
5
a
10
y
2
23
24
23
24
x
K
1
4
21
11
12
b
2'
12
17
22
16
24'
20
17

FIG. 1

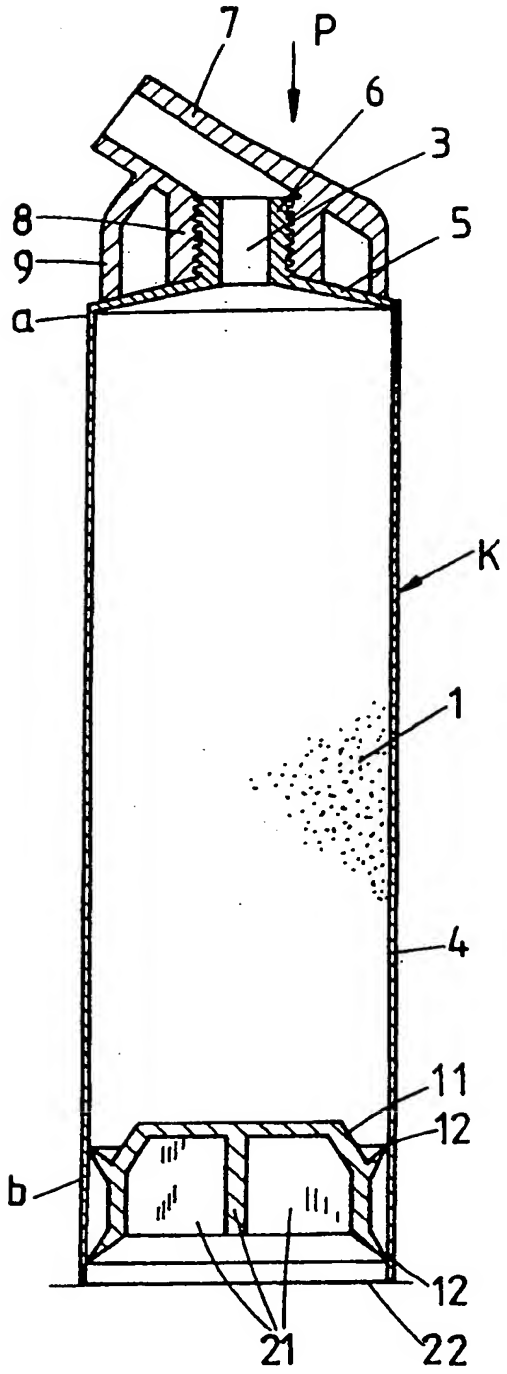
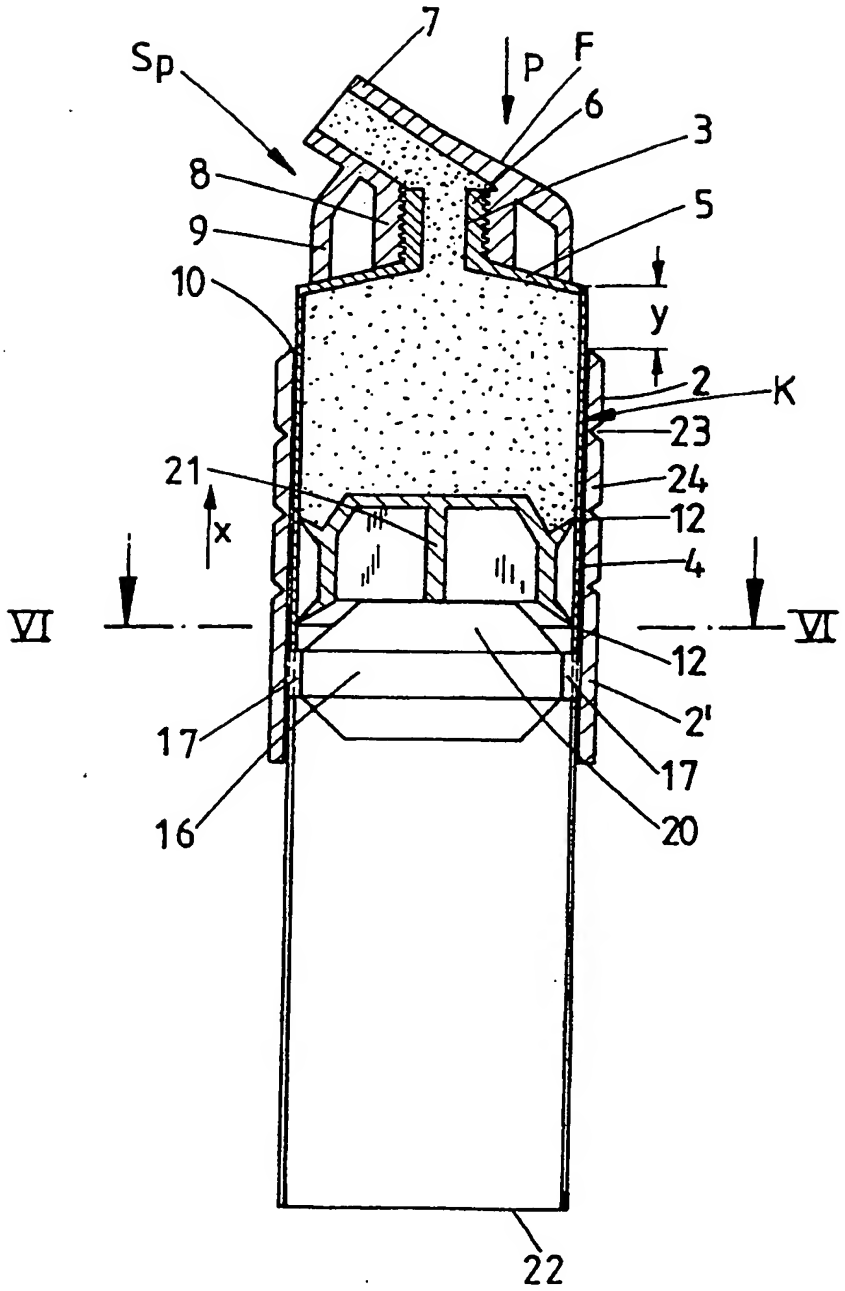


FIG. 2

FIG. 3



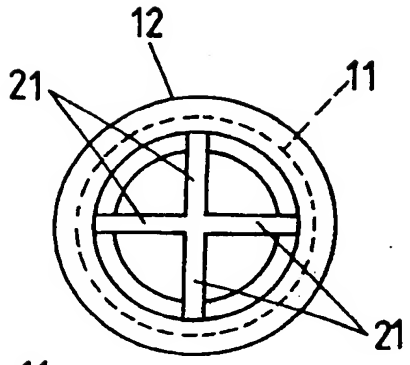


FIG. 4

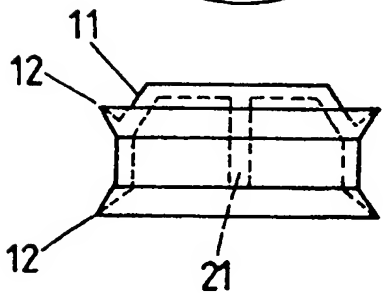


FIG. 5

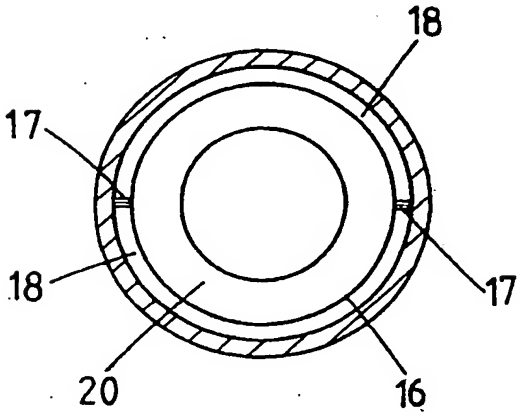
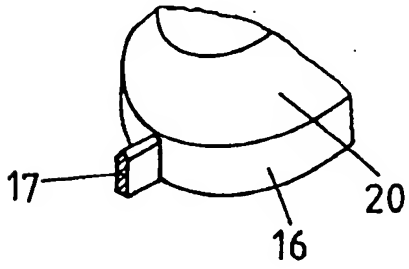


FIG. 6

FIG. 7



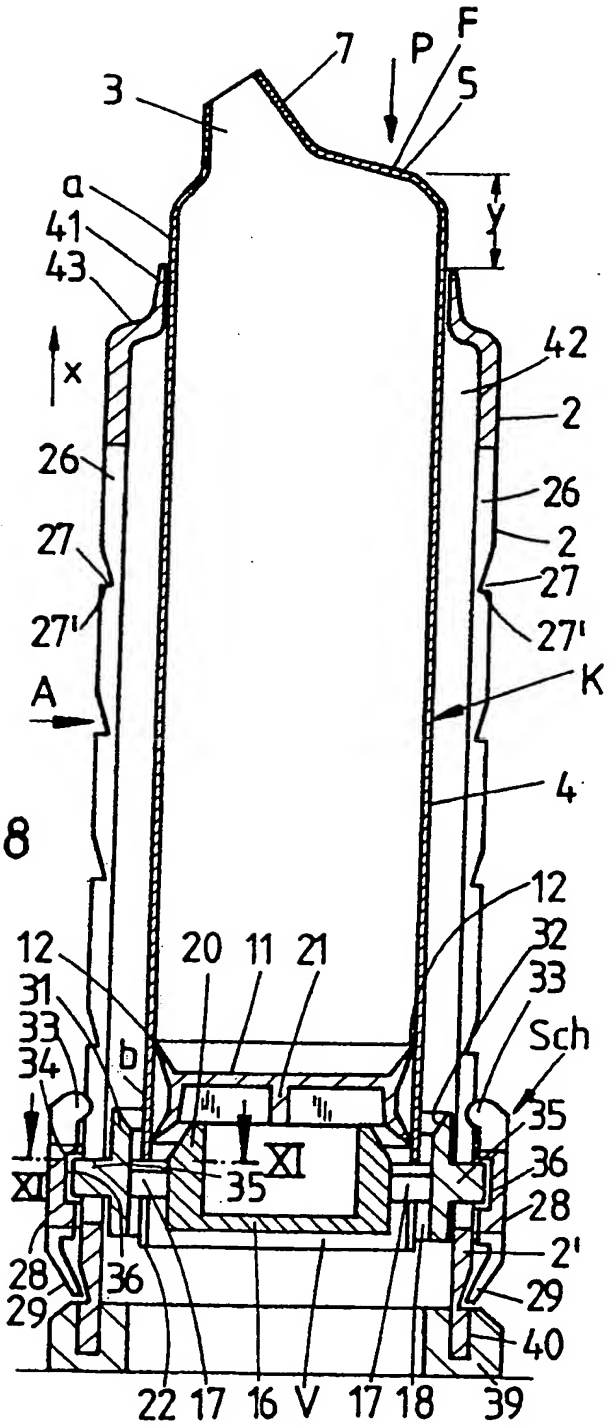

7
P
F
S
3
a
41
43
y
x
42
2
26
26
2
27
27
27'
27'
A
K
4
12
12
20
11
21
31
32
33
33
34
b
Sch
35
XI
XI
35
36
28
2'
28
36
29
29
40
22
17
16
V
17
18
39

FIG. 8

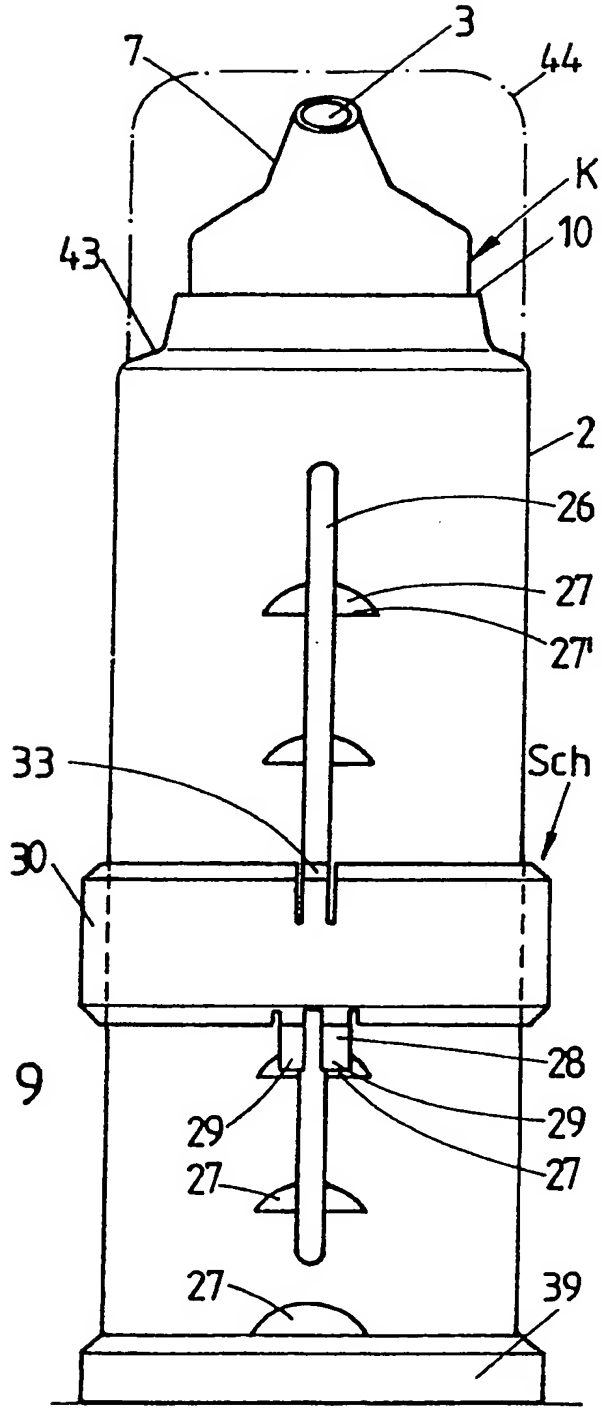


FIG. 9

FIG. 10

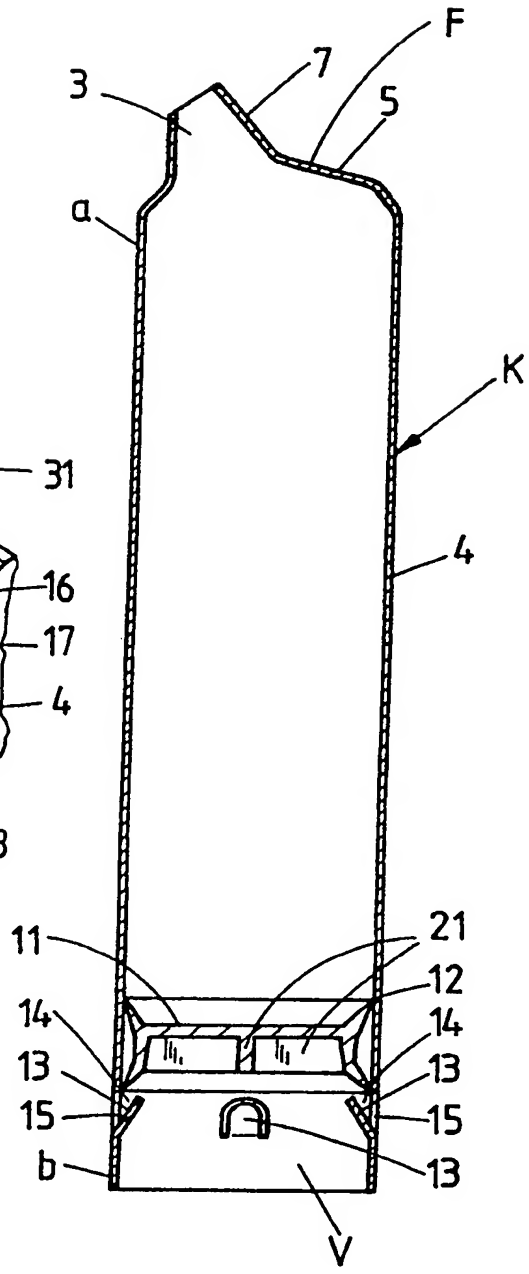
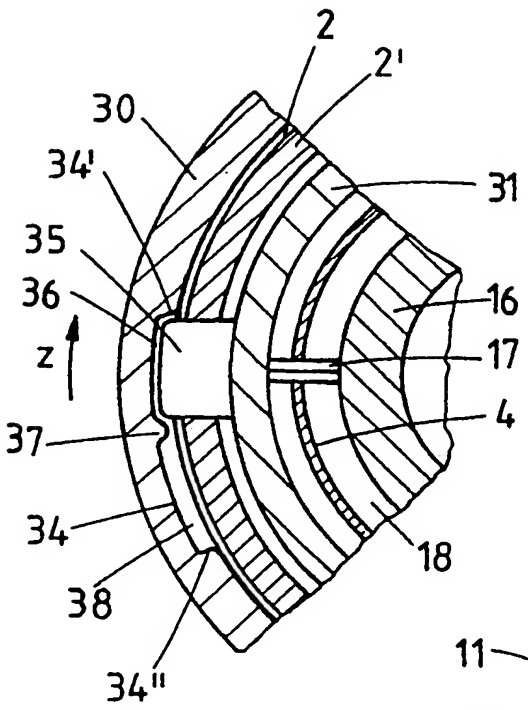

F
7
3
5
a
K
4
11
21
12
14
14
13
13
15
15
13
b
V

FIG. 11


2
2'
30
34'
31
35
36
16
z
17
37
4
34
18
38
34''